

4.0 Recommended Safety Improvements

4.1 Selection

The selection and recommendation of appropriate countermeasures is based upon several factors. These include those that:

1. Yield the highest Benefit-Cost Ratio (B/C)
2. Yield the highest Net Annual Benefit (EUAB)
3. Are the least restrictive
4. Have the greatest potential for crash reduction
5. Have the lowest implementation cost

A list of possible improvements for each intersection along with benefit-cost information can be found in Technical Appendix B and E for the years 2003 and 2004 respectively. All identified improvements are contained in this list. A recommended improvement was not identified where multiple improvements were listed.

4.2 Implementation

All countermeasures cannot be installed immediately, therefore a schedule for implementation must be developed. Priorities are based upon an analysis of the benefits and costs of improvements at each location. The selected improvements are then listed in a descending priority according to their benefit-cost ratio. They are then separated into the geometric, signal hardware, signing and marking, signal timing, enforcement, ITS, and further evaluation improvement categories.

Each category includes all of the intersections studied, regardless of their functional classification or control type. This report assumes that individuals responsible for the implementation of the safety improvements in each of the categories will further review and process them according to their established procedures. The recommended implementation schedules can be seen in **Tables 8 through 21**. Only those countermeasures having positive benefit-cost ratios are included in these tables. Those measures that were tested and rejected can be found in Technical Appendix B and E.

Table 8- 2003 Geometric Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"K" St/ 14th St	EB Left Turns	Construct Parking Setback on the North Side of 'K' St, West of 14th St	20	\$10,000	\$120,580	139.6
2	"P" St/ 21st St *	SB Right Angles	Install Node for SB Approach and Splitter Island for NB Approach with Stop Bars	10	\$10,200	\$121,465	88.7
3	Sweetbriar Ln/ 40th St	EB & WB Right Angles	Prohibit EB Left Turns (Close Median)	10	\$10,000	\$113,485	84.4
4	Holdrege St/ 40th St	SB Left Turn Right Angles	Prohibit SB Left Turn and SB Through Movements (Triangular Island Installation)	10	\$10,000	\$58,275	43.8
5	"A" St/ 18th St *	SB Right Angles	Prohibit SB Through and SB Left Turn Movements (Construct Triangular Island on 18th St)	10	\$10,000	\$58,275	43.8
6	"Q" St/ 25th St	NB & SB Right Angles	Install Node on NB Approach and Splitter Island on SB Approach with Stop Bars	10	\$10,200	\$35,710	26.8
7	"Q" St/ 21st St	NB Right Angles	Install Node on NB Approach and Splitter Island on SB Approach with Stop Bars	10	\$10,200	\$33,940	25.5
8	"D" St/ 11th St	SB Right Angles	Install Center Median Along 11th St	10	\$20,000	\$48,075	18.7
9	"Q" St/ 19th St *	SB Right Angles	Install Node on NB Approach and Splitter Island on SB Approach with Stop Bars	10	\$10,200	\$18,930	14.7
10	Centerpark Rd/ 14th St *	WB Right Turn Rear Ends	Tighten WB Centerpark Rd Approach (Provide Mountable Curb for WB Right Turn Trucks)	10	\$50,000	\$75,720	12.1
11	Nebraska Hwy/ 27th St *	NB & SB Left Turns & Rear Ends and EB & WB Left Turns	A Major Redesign Project was Completed 8/2004	20	\$400,000	\$283,790	9.1
12	"O" St/ 27th St *	EB & WB Left Turns & Rear Ends	A Major Redesign Project was Completed 7/2004	20	\$600,000	\$368,825	8.1
13	Old Cheney Rd/ 27th St	EB Rear Ends	Construct EB Right Turn Lane	20	\$150,000	\$90,205	7.9
14	"D" St/ 11th St	SB Right Angles	Install Curb Bulb-Outs at all Corners of Intersection Along 11th St	10	\$20,000	\$17,600	7.5
15	Capitol Pkwy W/ Folsom St	NB Rear Ends	Construct NB Right Turn Acceleration Lane	20	\$100,000	\$49,940	6.7
16	Centerpark Rd/ 14th St *	WB Right Turn Rear Ends	Construct Full Length Acceleration Lane NB 14th St	20	\$300,000	\$96,010	4.7
17	Nebraska Hwy/ 56th St *	EB Left Turns	Construct Dual EB Left Turn Bays	20	\$500,000	\$156,560	4.6
18	"D" St/ 11th St	SB Right Angles	Construct Single Lane Roundabout	20	\$300,000	\$54,410	3.1
19	"O" St/ 48th St *	All Crash Patterns	A Major Redesign Project is Underway During 2005/2006	20	\$2,000,000	\$309,190	2.8

Table 8- 2003 Geometric Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
20	Calvert St/ 56th St	NB & SB Left Turns & Rear Ends	Construct NB and SB Exclusive Left Turn Lanes	20	\$750,000	\$117,735	2.8
21	Nebraska Hwy/ 14th St *	NB & EB Right Turns and NB Rear Ends	A Major Redesign Project is Underway During 2005/2006	20	\$750,000	\$70,630	2.1
22	Capitol Pkwy W/ Homestead Expwy *	All Crash Patterns	A Major Redesign Project is Underway During 2005/2006	20	\$2,000,000	\$125,588	1.7
23	Elkcrest Dr/ 56th St *	NB & SB Rear Ends	Construct NB and SB Left Turn Lanes	20	\$750,000	\$16,350	1.3
TOTALS					\$8,770,800	\$2,441,288	

* Intersection common
to both study years

Table 9- 2004 Geometric Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	Cornhusker Hwy/ L55x/56th St	SEB Left Turns	Increase Turning Radii by Pulling Back Center Island on NE Leg of Cornhusker Hwy (Trucks)	20	\$2,000	\$35,995	206.7
2	"O" St/ 10th St	WB Right Angles	Convert WB Dual Right Turn Lanes to Single WB Right Turn Lane	3	\$450	\$27,505	162.8
3	"K" St/ 20th St	NB Right Angles	Prohibit NB Through Movement by Signing and Constructing Triangular Island on 20th St	10	\$10,000	\$182,670	135.3
4	"A" St/ 18th St	SB Right Angles	Prohibit SB Through and SB Left Turn Movements (Construct Triangular Island on 18th St)	10	\$10,000	\$124,900	92.8
5	Van Dorn St/ 70th St	NB Rear Ends	Construct NB Right Turn Lane	20	\$50,000	\$233,910	54.6
6	"Q" St/ 23rd St	NB Right Angles	Install Node on NB Approach and Splitter Island on SB Approach with Stop Bars	10	\$10,200	\$47,520	35.3
7	Holdrege St/ 56th St	EB Rear Ends	Increase Turning Radii at SW Corner	10	\$2,500	\$9,515	29.0
8	Washington St/ 16th St	WB Right Angles	Install Node on WB Approach and Splitter Island on EB Approach with Stop Bars	10	\$10,200	\$36,220	27.2
9	"A" St/ 70th St	NB & SB Rear Ends	Construct NB Right Turn Lane	20	\$120,000	\$237,890	23.7
10	"P" St/ 19th St	NB & SB Right Angles	Install Node on SB Approach with Splitter Island on NB Approach with Stop Bars	10	\$10,200	\$21,305	16.4
11	Vine St/ 48th St	NB & SB Rear Ends	Construct NB Right Turn Lane	20	\$50,000	\$64,620	15.8
12	Nebraska Hwy/ 70th St	EB Left Turns	Increase EB Left Turn Storage Length (Due to Church Expansion)	20	\$50,000	\$62,670	15.4
13	Centerpark Rd/ 14th St	WB Right Turn Rear Ends	Tighten WB Centerpark Rd Approach (Provide Mountable Curb for WB Right Turn Trucks)	10	\$50,000	\$89,845	14.2
14	"Q" St/ 19th St	NB & SB Right Angles	Install Node on NB Approach and Splitter Island on SB Approach with Stop Bars	10	\$10,200	\$16,515	12.9
15	"P" St/ 21st St	NB Right Angles	Install Node on SB Approach with Splitter Island on NB Approach with Stop Bars	10	\$10,200	\$16,515	12.9
16	Nebraska Hwy/ 27th St	NB & SB Left Turns & Rear Ends and EB & WB Left Turns	A Major Redesign Project Was Completed 8/2004	20	\$400,000	\$343,250	10.8
17	Adams St/ 1st St	SB Left Turn Rear Ends	Construct Exclusive SB Left Turn Lane	20	\$100,000	\$81,700	10.4
18	Holdrege St/ 56th St	EB Rear Ends	Increase Lane Width Along EB Approach	10	\$10,000	\$8,495	7.2
19	"O" St/ 27th St	EB & WB Left Turns & Rear Ends	A Major Redesign Project was Completed 7/2004	20	\$600,000	\$301,935	6.8

Table 9- 2004 Geometric Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
20	Elkrest Dr/ 56th St	NB & SB Rear Ends	Construct NB and SB Left Turn Lanes	20	\$750,000	\$321,065	5.9
21	Adams St/ 44th St	EB Rear Ends	Construct Exclusive EB Left Turn Lane	20	\$100,000	\$42,820	5.9
22	Centerpark Rd/ 14th St	WB Right Turn Rear Ends	Construct Full Length Acceleration Lane NB 14th St	20	\$300,000	\$116,925	5.5
23	Fremont St/ 66th St	NB Right Angles	Construct Single Lane Roundabout	20	\$300,000	\$109,475	5.2
24	"O" St/ 48th St	All Crash Patterns	A Major Redesign Project is Underway During 2005/2006	20	\$2,000,000	\$607,985	4.5
25	Cornhusker Hwy/ L55x/56th St	NEB Left Turns	Construct NEB Dual Left Turn Lanes	20	\$500,000	\$82,995	2.9
26	Vine St/ 48th St	EB & WB Left Turns	Construct EB Right Turn Lane	20	\$100,000	\$13,585	2.6
27	"O" St/ 33rd St	EB & WB Rear Ends	Increase Capacity (Through Lanes on "O" St)	20	\$2,000,000	\$268,965	2.5
28	Vine St/ 35th St	EB Left Turns & Left Turn Rear Ends	Construct Exclusive EB and WB Left Turn Lanes	20	\$750,000	\$73,015	2.1
29	Nebraska Hwy/ 14th St	NB & EB Right Turns and NB Rear Ends	A Major Redesign Project is Underway During 2005/2006	20	\$750,000	\$64,355	2.0
30	Capitol Pkwy W/ Homestead Expwy	All Crash Patterns	A Major Redesign Project is Underway During 2005/2006	20	\$2,000,000	\$123,885	1.7
TOTALS					\$11,055,950	\$3,768,045	

Table 10- 2003 Signal Hardware Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	Nebraska Hwy/ 56th St *	EB Left Turns	Convert EB Left Turn Phase to Protected Only	15	\$5,000	\$138,715	270.3
2	Vine St/ 27th St *	NB & SB Left Turns	Convert NB and SB Left Turn Phase to Protected Only	5	\$5,000	\$263,830	223.6
3	Centennial Mall Rd/ "O" St	EB & WB Rear Ends	Install Detection (Semi-Actuation)	10	\$5,000	\$143,350	211.8
4	"K" St/ 17th St	NB Right Angles	Install Additional Signal Heads and LED Signal Indications	10	\$10,000	\$125,840	93.5
5	Vine St/ 27th St	EB & WB Left Turns	Convert EB and WB Left Turn Phase to Protected Only	5	\$5,000	\$97,140	83.0
6	Old Cheney Rd/ 27th St	NB Left Turns	Convert NB Left Turn Phase to Protected Only	5	\$5,000	\$88,580	75.8
7	Centennial Mall Rd/ "O" St	EB & WB Rear Ends	Install Supplemental Signal Heads on 'O' St	15	\$4,000	\$29,255	72.4
8	Comhusker Hwy/ 48th St	NB Right Turn Rear Ends	Install Pole Mounted 5-Section Signal Head	15	\$2,000	\$9,400	46.9
9	Holdrege St/ 27th St	NB Left Turns	Convert NB and SB Left Turn Phase to Protected Only	5	\$5,000	\$52,260	45.1
10	Sweetbriar Ln/ 40th St	EB & WB Right Angles	Install LED Sign to Prohibit EB and WB Left Turning Movements During Peak Hours	10	\$8,000	\$44,850	42.3
11	Old Cheney Rd/ 27th St	SB Left Turns	Convert SB Left Turn Phase to Protected Only and Overlap with WB Right Turn Phase	5	\$5,000	\$20,465	18.3
12	Nebraska Hwy/ 56th St *	SB Right Turn Rear Ends	Convert Yield Control to Signalized Control for SB Right Turn Movements	15	\$5,000	\$8,860	18.2
13	Stacy Ln/ 70th St *	EB & WB Right Angles	Install Traffic Signal	15	\$100,000	\$142,930	14.9
14	Old Dairy Rd/ 27th St *	EB & SB Right Angles	Install Traffic Signal	15	\$100,000	\$135,225	14.1
15	Pioneers Blvd/ Stacy Ln *	SB Right Angles	Install Traffic Signal	15	\$100,000	\$73,395	8.1
TOTALS					\$364,000	\$1,374,095	

*Intersection common to both study years

Table 11 - 2004 Signal Hardware Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	Nebraska Hwy/ 40th St	EB Rear Ends	Install Pole Mounted 5-Section Signal Head with Right Turn Overlap with NB and SB Left Turns	15	\$2,000	\$10,980	54.6
2	"O" St/ 10th St	WB Rear Ends & Right Angles	Install LED Signal Indications	10	\$350	\$59,695	1194.9
3	Vine St/ 27th St	SB Rear Ends	Install SB Right Turn Overlap Phase with EB Protected Left Turn Phase	15	\$2,000	\$54,100	264.9
4	Randolph St/ 48th St	SB Rear Ends	Install Pole Mounted Signal Head	15	\$2,000	\$44,345	217.3
5	"O" St/ 33rd St	EB & WB Rear Ends	Convert EB and WB Left Turn Phase to Protected Only	5	\$10,000	\$403,435	170.9
6	Cornhusker Hwy/ L55x/56th St	SEB Right Turn Rear Ends	Install LED Sign to Prohibit SEB Right Turn on Red	6	\$4,000	\$91,315	113.0
7	"P" St/ 27th St	SB Rear Ends & Right Angles	Improve Signal Displays	15	\$20,000	\$225,375	110.4
8	"O" St/ 17th St	NB & WB Rear Ends	Install Pole Mounted Signal Heads	15	\$4,000	\$40,285	99.3
9	"A" St/ 70th St	NB & SB Rear Ends	Install Pole Mounted Signal Heads NB and SB with SB Right Turn Overlap	15	\$4,000	\$34,140	84.3
10	Pioneers Blvd/ 70th St	NB Rear Ends	Install Pole Mounted Signal Head	15	\$2,000	\$16,910	83.5
11	"O" St/ 52nd St	EB Right Angles & WB Rear Ends	Install Mast Arm and Pole Mounted Signals	15	\$20,000	\$159,560	78.5
12	Cornhusker Hwy/ L55x/56th St	SEB Right Turn Rear Ends	Convert NEB Left Turn Phase to Protected Only and Overlap with SEB Right Turn Phase	5	\$5,000	\$90,325	77.2
13	Cornhusker Hwy/ L55x/56th St	NEB Left Turns	Convert NEB Left Turn Phase to Protected Only and Overlap with SEB Right Turn Phase	5	\$5,000	\$81,580	69.8
14	Stacy Ln/ 70th St	SB Left Turns	Convert SB Left Turn Phase to Protected Only	5	\$5,000	\$77,720	66.6
15	"M" St/ 9th St	SB Rear Ends	Install Supplemental Signal Heads on 9th St	15	\$2,000	\$11,695	58.0
16	Vine St/ 27th St	NB & SB Left Turns	Convert NB & SB Left Turn Phase to Protected Only	5	\$10,000	\$91,980	39.7
17	Fremont St/ 66th St	NB Right Angles	Install Flashing Beacon Above Stop Signs	10	\$20,000	\$82,790	31.5
18	Vine St/ 48th St	EB & WB Left Turns	Convert EB and WB Left Turn Phase to Protected Only	5	\$10,000	\$48,665	21.5
19	Pioneers Blvd/ Stacy Ln	NB & SB Right Angles	Install Traffic Signal	15	\$100,000	\$197,755	20.2

Table 11 - 2004 Signal Hardware Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
20	"O" St/ 25th St	All Crash Patterns	Rebuild Signal with Mast Arms and Pole Mounted Signals	15	\$60,000	\$111,630	19.1
21	Nebraska Hwy/ 56th St	SB Right Turn Rear Ends	Convert Yield Control to Signalized Control for SB Right Turn Movements	15	\$5,000	\$9,330	19.1
22	Nebraska Hwy/ 70th St	SB Left Turns	Convert SB Left Turn Phase to Protected Only	5	\$5,000	\$18,130	16.3
23	Cotner Blvd/ 70th St	EB Crashes	Relocate Light Pole to East Side of Cotner Blvd	10	\$1,000	\$1,970	15.6
24	Vine St/ 48th St	NB & SB Rear Ends	Install Mast Arm and Pole Mounted Signals	15	\$24,000	\$28,080	12.4
25	Holdrege St/ 56th St	EB Right Angles	Rebuild Traffic Signal (Mast Arms)	15	\$60,000	\$49,125	9.0
26	Old Dairy Rd/ 27th St	EB & SB Right Angles	Install Traffic Signal	15	\$100,000	\$71,750	8.0
27	Holdrege St/ 56th St	EB Rear Ends	Rebuild Traffic Signal (Mast Arms)	15	\$60,000	\$24,265	4.9
28	Stacy Ln/ 70th St	WB Right Angles	Install Traffic Signal	15	\$100,000	\$22,585	3.2
29	Nebraska Hwy/ Old Cheney Rd	SWB Right Turn Rear Ends	Install LED No Right Turn Sign (On With Red Signal 6:30 AM to 6:30 PM)	10	\$4,000	\$1,030	2.9
TOTALS					\$646,350	\$2,160,545	

Table 12- 2003 Signing and Marking Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"P" St/ 21st St *	SB Right Angles	Prohibit Parking on West Side of 21st St for 100 feet North of 'P' St	6	\$100	\$299,295	14965.8
2	Havelock St/ 84th St	EB Right Angles	Install "Look Again" Signs on Havelock Ave	6	\$70	\$49,035	3270.0
3	Whitehead Dr/ Telluride Dr	SB Right Angles	Install Stop Control on Telluride Dr	6	\$200	\$127,150	3179.8
4	Cornhusker Hwy/ 48th St	NB Right Turn Rear Ends	Prohibit Right Turn on Red	6	\$100	\$45,415	2271.8
5	"Y" St/ 42nd St	NB Right Angles	Install Yield Control on 'Y' St	6	\$200	\$81,715	2043.9
6	"R" St/ 19th St	NB & SB Right Angles	Prohibit On-Street Parking Along 'R' St on West Leg Within 100 feet of 19th St	6	\$100	\$37,855	1893.8
7	"R" St/ 23rd St	NB & SB Right Angles	Prohibit On-Street Parking Along 'R' St on West Leg Within 100 feet of 23rd St	6	\$100	\$37,855	1893.8
8	Adams St/ 44th St *	SB Right Angles	Install "Look Again" Sign on SB Approach	6	\$100	\$34,405	1721.3
9	"E" St/ 23th St	NB Right Angles	Install Yield Control on 23rd St	6	\$200	\$49,455	1237.4
10	"A" St/ 18th St *	SB Right Angles	Prohibit On-Street Parking North of 'A' St, on West Side of 18th St	6	\$100	\$23,225	1162.3
11	Adams St/ 44th St *	SB Rear Ends	Mark Stop Bar on SB Approach	3	\$100	\$40,005	1144.0
12	"Q" St/ 19th St *	SB Right Angles	Install "Look Again" Signs on 19th St	6	\$100	\$19,780	990.0
13	"K" St/ 14th St	EB Left Turns	Mark 'K' St at 12th St to Reinforce the Lane Use Along 'K' St	3	\$500	\$109,450	592.6
14	Centennial Mall Rd/ "O" St	EB & WB Rear Ends	Trim Tree Branches on 'O' St	1	\$100	\$54,110	516.3
15	"H" St/ 13th St	EB Right Angles	Mark Stop Bar on EB Approach	3	\$100	\$8,410	241.3
16	Cornhusker Hwy/ 48th St	EB Right Turns	Convert Yield Control to Stop Control for EB Right Turn Movements	6	\$100	\$4,540	228.0
17	Lowell Ave/ 52nd St	SB Right Angles	Install Yield Control on Lowell Ave	6	\$200	\$8,580	215.5
18	Beaver Creek Ln/ Pine Lake Rd	EB & WB Left Turns	Mark Offset Left Turn Lanes on Pine Lake Rd	3	\$1,000	\$70,445	188.9
19	Havelock St/ 84th St	EB Rear Ends	Replace "Stop Ahead" Sign	6	\$70	\$2,620	175.7

Table 12- 2003 Signing and Marking Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
20	Washington St/ 16th St *	WB Right Angles	Install "Look Again" Sign on WB Washington St	6	\$100	\$3,430	172.5
21	"K" St/ 17th St	EB Left Turns	Mark North Crosswalk on 17th St	3	\$1,000	\$52,740	141.6
22	Cornhusker Hwy/ 48th St	NB Right Turn Rear Ends	Install NB Right Turn Stop Bar and Crosswalk	3	\$1,100	\$44,100	108.6
23	Nebraska Hwy/ 84th St	EB Rear Ends	Install Advanced Warning Sign With Flasher (W3-3 or W3-4)	10	\$2,500	\$25,280	75.4
24	Van Dorn St/ 79th St	NB & SB Right Angles	Mark NB and SB Approaches to One Lane	3	\$2,000	\$51,955	70.3
25	Nebraska Hwy/ 70th St *	WB Rear Ends	Install Advanced Warning Sign With Flasher (W3-3 or W3-4)	10	\$4,000	\$34,780	64.8
26	Centerpark Rd/ 14th St *	WB Right Turn Rear Ends	Convert Right Turn Stop Control to Yield Control and Install Thru Vehicles Keep Left (3-6 PM Weekdays) Sign on NB 14th St South of Centerpark Rd Intersection	6	\$4,000	\$31,350	39.5
27	Vine St/ 25th St (East Junction)	EB Left Turns & Left Turn Rear Ends	Prohibit EB Left Turns	20	\$100,000	\$272,410	32.2
28	St Paul Ave/ 48th St	NB & SB Left Turns	Install LED Sign to Prohibit NB and SB Left Turns	10	\$8,000	\$21,000	20.4
29	Vine St/ 25th St (West Junction)	All Crash Patterns	Prohibit NB Left Turns	20	\$100,000	\$155,900	18.9
30	Vine St/ 25th St (West Junction)	All Crash Patterns	Prohibit WB Left Turns	20	\$100,000	\$155,900	18.9
TOTALS					\$326,240	\$1,952,190	

*Intersection common to both study years

Table 13 - 2004 Signing and Marking Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"P" St/ 27th St	SB Rear Ends & Right Angles	Mark Stop Bar on SB Approach	3	\$100	\$351,335	10039.1
2	Baldwin Ave/ 41st St	EB Right Angles	Convert Yield Control to Stop Control on Baldwin Ave	6	\$200	\$123,005	3076.1
3	"A" St/ 18th St	SB Right Angles	Prohibit On-Street Parking North of "A" St on West Side of 18th St	6	\$100	\$49,200	2481.0
4	"A" St/ 8th St	NB Right Angles	Install "Stop Ahead" Sign on NB Approach	6	\$100	\$47,645	2383.3
5	"Q" St/ 23rd St	NB Right Angles	Install "Look Again" Sign on NB Approach	6	\$100	\$47,645	2383.3
6	Vine St/ 35th St	EB Left Turns & Left Turn Rear Ends	Prohibit EB Left Turn Movements	6	\$200	\$91,065	2277.6
7	"W" St/ 28th St	NB & SB Right Angles	Convert Yield Control to Stop Control on 28th St	6	\$200	\$83,290	2083.3
8	Washington St/ 16th St	WB Right Angles	Install "Look Again" Signs on WB Approach	6	\$100	\$36,630	1832.5
9	Fremont St/ 66th St	NB Right Angles	Install "Look Again" Signs on 66th St	6	\$200	\$33,290	833.3
10	"E" St/ 16th St	WB Right Angles	Mark Stop Bars on "E" St	3	\$200	\$81,550	1088.3
11	Cornhusker Hwy/ L55x/56th St	SEB Right Turn Rear Ends	Install Sign and Mark SB Right Turn Lane as Right Turn Only	3	\$350	\$90,120	694.2
12	Fremont St/ 66th St	NB Right Angles	Mark Stop Bar and Stop Text on NB Approach	3	\$350	\$81,495	627.9
13	"Q" St/ 14th St	WB Rear Ends	Trim Tree Branches on "Q" St	1	\$100	\$64,460	614.9
14	Adams St/ 44th St	SB Rear Ends	Mark Stop Bar on SB Approach	3	\$100	\$17,050	488.1
15	Adams St/ 1st St	WB Rear Ends	Install Pole Mounted Adams St Sign on West Side of 1st St	6	\$100	\$8,805	441.3
16	Adams St/ 1st St	WB Rear Ends	Install Double Arrow Sign on 1st St	6	\$100	\$8,805	441.3
17	"Q" St/ 19th St	NB & SB Right Angles	Install "Look Again" Signs on 19th St	6	\$200	\$17,405	436.1
18	Adams St/ 44th St	SB Rear Ends	Install "Look Again" Sign on SB Approach	6	\$100	\$8,700	436.0
19	Fremont St/ 66th St	NB Right Angles	Install 36" Stop Signs on 66th St	6	\$200	\$16,625	416.6

Table 13 - 2004 Signing and Marking Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
20	"O" St/ 17th St	NB Left Turns	Install Sign and Mark NB Left Turn Lane Use as Left Turn Only	3	\$350	\$54,020	416.5
21	"W" St/ 9th St	SB Left Turns	Convert Shared SB Left Thru to SB Thru Only on SB Approach	3	\$250	\$26,575	280.7
22	"W" St/ 9th St	SB Left Turns	Remove Parking in East SB Left Turn Lane Between "N" St and "W" St	6	\$100	\$5,425	272.3
23	Normal Blvd/ 70th St	EB Crashes	Prohibit EB Left Turn Movements with Signing, Striping, and Stop Bar to Reinforce Stop Control	3	\$1,000	\$94,185	252.2
24	L55W/Warlick Blvd/ Old Cheney Rd	WB Left Turns	Mark Stop Bar on WB Approach	3	\$100	\$8,085	232.0
25	Cothier Blvd/ 70th St	EB Crashes	Mark Gore Area with Stripes on NEB Approach	3	\$500	\$39,725	215.7
26	"T" St/ 30th St	SB Right Angles	Remove Picket Fence on NW Corner to Improve Sight Distance	1	\$100	\$21,245	203.3
27	"O" St/ 11th St	EB Rear Ends	Trim Tree Branches on "O" St	1	\$100	\$18,635	178.5
28	"O" St/ 18th St	NB & SB Right Angles	Mark Triangular Islands to Reinforce Right Turn Only Restriction on 18th St	3	\$2,000	\$123,595	165.8
29	Coddington Ave/ Van Dorn St	NB & SB Right Angles	Install 4-Way Stop with Flashers as Interim Measure	6	\$10,000	\$92,960	46.7
30	Centerpark Rd/ 14th St	WB Right Turn Rear Ends	Convert Right Turn Stop Control to Yield Control and Install Thru Vehicles Keep Left (3-6 PM Weekdays) Sign on NB 14th St South of Centerpark Rd Intersection	6	\$4,000	\$36,855	46.2
31	Cornhusker Hwy/ 11th St	NB Rear Ends & Right Turn Rear Ends	Install Advanced Directional Signs on 11th St South of Saunders Ave	10	\$4,000	\$2,375	5.4
TOTALS					\$25,600	\$1,781,800	

Table 14- 2003 Signal Timing Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	Cornhusker Hwy/ Havelock Ave	SWB Rear Ends	Adjust Signal Timing for Progression Along Cornhusker Hwy	1	\$1,000	\$153,245	145.6
2	"K" St/ 17th St	NB Right Angles	Adjust Signal Timing for Clearances and Progression	1	\$1,000	\$38,840	37.6
3	Cornhusker Hwy/ 27th St *	SB Rear Ends	Adjust Signal Timing for Progression Along 27th St from Cornhusker Hwy to Knox St	1	\$1,000	\$26,830	26.3
4	Centennial Mall Rd/ "O" St	EB & WB Rear Ends	Adjust Signal Timing for Progression Along EB 'O' St for PM Peak (Semi-Actuation)	1	\$1,000	\$26,050	25.6
5	Holdrege St/ 27th St	NB Rear Ends	Adjust Signal Timing for Progression Along 27th St During Off-Peak and Weekend Hours	1	\$1,000	\$18,155	18.1
6	Antelope Creek Rd/ 48th St	SB Left Turns	Adjust Signal Timing at 48th St and Normal Blvd to Reduce Queues on NB Approach	1	\$1,000	\$15,610	15.7
7	Knox St/ 27th St *	SB Rear Ends	Adjust Signal Timing for Progression Along 27th St	1	\$1,000	\$10,210	10.6
8	Pine Lake Rd/ 27th St *	WB Rear Ends	Adjust Signal Timing for Progression Along Pine Lake Rd from 27th St to 29th St	1	\$1,000	\$8,545	9.1
9	Ridge Line Rd/ 27th St *	SB Rear Ends	Adjust Signal Timing for Progression Along 27th St	1	\$1,000	\$8,500	9.0
10	"O" St/ 1st St	EB Rear Ends	Adjust Signal Timing for Progression Along 'O' St	1	\$1,000	\$2,415	3.3
11	Tipperary Trl/ 27th St	NB Rear Ends	Adjust Signal Timing for Progression Along 27th St on Weekends	1	\$1,000	\$1,435	2.4
TOTALS					\$11,000	\$309,835	

* Intersection common to both study years

Table 15 - 2004 Signal Timing Improvements

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"P" St/ 27th St	SB Right Angles	Increase All Red Clearance Interval	1	\$100	\$48,470	482.6
2	Cornhusker Hwy/ 27th St	SB Rear Ends	Adjust Signal Timing Progression Along 27th St From Cornhusker Hwy to Knox St	1	\$100	\$37,080	354.1
3	"P" St/ 27th St	SB Rear Ends	Adjust Signal Timing for Progression Along 27th St With "O" St During Off-Peak Hours	1	\$100	\$20,595	197.1
4	"O" St/ 33rd St	EB & WB Rear Ends	Adjust Signal Timing for Progression Along "O" St	1	\$1,000	\$77,840	74.4
5	Knox St/ 27th St	NB & SB Rear Ends	Adjust Signal Timing for Progression Along 27th St	1	\$1,000	\$47,965	46.3
6	Pioneers Blvd/ 70th St	SB Rear Ends	Adjust Signal Timing (Splits)	1	\$1,000	\$44,250	42.7
7	"O" St/ 14th St	WB Rear Ends	Adjust Signal Timing for Progression Along "O" St	1	\$1,000	\$31,225	30.5
8	Van Dorn St/ 70th St	SB Left Turns	Adjust Signal Timing (Splits)	1	\$1,000	\$31,125	30.4
9	"A" St/ 70th St	NB & SB Rear Ends	Adjust Signal Timing for Progression Along 70th St	1	\$1,000	\$30,510	29.8
10	Pioneers Blvd/ 70th St	NB Rear Ends	Adjust Signal Timing (Splits)	1	\$1,000	\$14,580	14.8
11	"O" St/ 17th St	NB Rear Ends	Adjust Signal Timing for Progression Along 17th St	1	\$1,000	\$10,010	10.4
12	Nebraska Hwy/ 40th St	EB Rear Ends	Adjust Signal Timing for Progression Along Nebraska Hwy During Weekend Hours	1	\$1,000	\$9,160	9.6
13	"O" St/ 11th St	EB Rear Ends	Adjust Signal Timing for Progression Along "O" St	1	\$1,000	\$8,310	8.8
TOTALS					\$10,300	\$411,120	

Table 16 - 2003 Enforcement Measures

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	St Paul Ave/ 48th St	All Crash Patterns	Selective Enforcement of Speed Limit on 48th St	1	\$2,500	\$26,955	11.2
2	Havelock St/ 84th St	EB Right Angles	Selective Enforcement of Speed Limit on 84th St	1	\$2,500	\$21,030	8.9
TOTALS					\$5,000	\$47,985	

Table 17 - 2004 Enforcement Measures

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"E" St/ 16th St	WB Right Angles	Enforce No Parking Between Sidewalk and Curb on East Side of 16th St, North of "E" St to Improve Sight Distance	1	\$250	\$15,825	60.7
2	Cornhusker Hwy/ 27th St	NB Rear Ends	Selective Enforcement of Speed Limit on 27th St	1	\$2,500	\$62,510	24.6
3	"O" St/ 52nd St	EB Right Angles & WB Rear Ends	Selective Enforcement of Signal Violations	1	\$2,500	\$46,575	18.6
4	Pioneers Blvd/ 70th St	SB Rear Ends	Selective Enforcement of Speed Limit on 70th St	1	\$2,500	\$42,660	17.1
5	Van Dorn St/ 70th St	NB Rear Ends	Selective Enforcement of Speed Limit on 70th St	1	\$2,500	\$39,755	16.0
6	"O" St/ 10th St	WB Rear Ends & Right Angles	Selective Enforcement of Speed Limit and Lane Changing on "O" St (8PM to Midnight)	1	\$2,500	\$34,830	14.1
7	"O" St/ 18th St	NB & SB Right Angles	Enforce Right Turn Only on Saturdays	1	\$2,500	\$21,865	9.3
TOTALS					\$15,250	\$264,020	

Table 18- 2003 ITS Applications

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"K" St/ 14th St	EB Left Turns	Install LED Variable Message Sign on Mast Arm	10	\$1,500	\$22,765	112.0
2	"A" St/ 48th St *	SB Rear Ends	Install DMS on SB Approach with Warnings About Possible Queues	10	\$4,000	\$35,455	66.1
TOTALS					\$5,500	\$58,220	

*Intersection common
to both study years

Table 19 - 2004 ITS Applications

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"A" St/ 27th St	EB Rear Ends	Install LED Advanced Warning Sign	10	\$4,000	\$71,470	132.1
2	"A" St/ 70th St	NB & SB Rear Ends	Install LED Advance Warning Sign on NB Approach at Crest of Hill	10	\$4,000	\$66,555	123.1
3	"A" St/ 48th St	SB Rear Ends	Install DMS on SB Approach with Warnings About Possible Queues	10	\$4,000	\$20,650	38.9
TOTALS					\$12,000	\$158,675	

Table 20 - 2003 Further Evaluations

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	"C" St/ 19th St	NB Right Angles	Conduct Study for Yield Control on 19th St	6	\$1,000	-	-
2	Cornhusker Hwy/ 27th St *	SB Rear Ends	Conduct Speed Study on 27th St	1	\$1,000	-	-
3	Elkcrest Dr/ 58th St *	NB & SB Rear Ends	Conduct Speed Study on 58th St	1	\$1,000	-	-
4	Leighton Ave/ 63rd St *	NB & SB Right Angles	Conduct Speed Study on Leighton Ave	1	\$1,000	-	-
5	Van Dorn St/ 79th St	NB & SB Right Angles	Evaluate for Traffic Signal	15	\$100,000	-	-
6	"H" St/ 13th St	EB Right Angles	Conduct Speed Study on 13th St	1	\$1,000	-	-
TOTALS					\$105,000		

*Intersection common
to both study years

Table 21 - 2004 Further Evaluations

Rank	Intersection	Crash Pattern	Countermeasures	Service Life	Estimated Initial Cost	Net Annual Benefit	Benefit Cost Ratio
1	Elkrest Dr/ 56th St	NB & SB Rear Ends	Conduct Speed Study on 56th St	1	\$1,000	-	-
2	Comhusker Hwy/ 27th St	SB Rear Ends	Conduct Speed Study on 27th St	1	\$1,000	-	-
3	Leighton Ave/ 63rd St	NB & SB Right Angles	Conduct Speed Study on Leighton Ave	1	\$1,000	-	-
TOTALS					\$3,000		